

CLAIMS

1. Apparatus for producing a print from a digital image, comprising:
- (a) a display device for generating an image from digital image data,
 - (b) means for exposing said image separately to red, green and blue light,
 - 5 (c) optical projection means for projecting said exposed image onto photosensitive paper or film, and
 - (d) means for controlling the duration and sequence of the exposure of said image to red, green and blue light.
- 10 2. Apparatus as claimed in claim 1 wherein said display device is a reflective liquid crystal on silicon microdisplay.
- 15 3. Apparatus as claimed in claim 1 wherein said display device is a digital mirror display device comprising micro-machined mirrors on silicon.
- 20 4. Apparatus as claimed in claim 2 or 3 wherein said red, green and blue light is polarised prior to exposing said image, and said display device reflects said red, green and blue light with a rotated polarization from pixels that are in an on condition.
5. Apparatus as claimed in claim 1 wherein said display device is a transmissive thin film transistor active matrix liquid crystal display.

6. Apparatus as claimed in claim 5 wherein said red, green and blue light is polarised prior to exposing said image, and said display device transmits said red, green and blue light with a rotated polarization from pixels that are in an on condition.

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7. Apparatus as claimed in claim 1 comprising separate sources of red, green and blue light, and wherein the operation of said separate sources of red, green and blue light is controlled by said control means.

10 8. Apparatus as claimed in claim 1 comprising a single source of light and further comprising red, green and blue filters to generate said red, green and blue light, wherein operation of said filters is controlled by said control means.

- 15 9. Apparatus as claimed in claim 1 wherein said control means comprises a computer.

10. Apparatus for producing a print from a digital image, comprising:
(a) a light source,
(b) means for generating a collimated light beam from said source,
20 (c) a cold mirror for reflecting light of a wavelength shorter than a predetermined cut-off wavelength,
(d) a UV filter for transmitting light of a wavelength longer than a second predetermined cut-off wavelength,

- (e) colour filter means for selectively passing red, green or blue light,
- (f) a reflective display device for displaying a digitally generated image,
- (g) a polarising beam splitter for directing polarised red, green or blue light onto said display device, and for allowing transmission of red, green or blue light reflected from on pixels of said display device,
- 5 (h) means for projecting said reflected light onto a photosensitive film or paper, and
- (i) control means for controlling the operation of said apparatus.

- 10 11. Apparatus for producing a print from a digital image, comprising:
- (a) a light source,
 - (b) means for generating a collimated light beam from said source,
 - (c) a cold mirror for reflecting light of a wavelength shorter than a predetermined cut-off wavelength,
 - 15 (d) a UV filter for transmitting light of a wavelength longer than a second predetermined cut-off wavelength,
 - (e) colour filter means for selectively passing red, green or blue light,
 - (f) a transmissive display device for displaying a digitally generated image,
 - (g) a first polariser for directing polarised red, green or blue light onto said display device,
 - 20 (h) a second polariser for allowing transmission of red, green or blue light transmitted through on pixels of said display device,

- (i) means for projecting said reflected light onto a photosensitive film or paper,
and
- (j) control means for controlling the operation of said apparatus.

- 5 12. Apparatus for producing a print from a digital image, comprising:
- (a) sources of red, green and blue light,
 - (b) means for generating a collimated light beam from said sources,
 - (c) a reflective display device for displaying a digitally generated image,
 - (d) a polarising beam splitter for directing polarised red, green or blue light onto
10 said display device, and for allowing transmission of red, green or blue light
reflected from on pixels of said display device,
 - (e) means for projecting said reflected light onto a photosensitive film or paper,
and
 - (f) control means for controlling the operation of said apparatus.
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13. Apparatus for producing a print from a digital image, comprising:
- (a) sources of red, green and blue light,
 - (b) means for generating a collimated light beam from said sources,
 - (c) a transmissive display device for displaying a digitally generated image,
 - (d) a first polariser for directing polarised red, green or blue light onto said
20 display device,
 - (e) a second polariser for allowing transmission of red, green or blue light
transmitted through on pixels of said display device,

- (f) means for projecting said reflected light onto a photosensitive film or paper,
and
- (g) control means for controlling the operation of said apparatus.

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